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Florida Agricultural Experiment Station

MELANOSE

By B. F. Floyd

Melanose is a disease of the fruit, leaves, and young branches of citrus trees. No organism has been proved to be the cause of this disease. Under the microscope, it nearly always shows the development of a corky layer of cells just beneath the epidermis, which indicates some outside influence as causing the trouble. The disease is associated with a weakened condition of the tree, and has been found to reach its greatest development on neglected trees, or on those otherwise diseased.

Remedy

In 1894, Swingle and Webber found that melanose could be controlled by the use of Bordeaux mixture or ammoniacal solution of copper carbonate. They advised two sprayings, "the first about two weeks after the flowers have fallen, and the second about a month later. A Vermorel nozzle, and a pump giving a good spray, should be used. The spray must be applied to the fruits in the form of a fine mist covering them thinly and evenly." Since these sprays are fungicides, they will kill off the natural fungus enemies of the purple scale and allow this scale to develop. Hence these sprayings should be followed at intervals with some good insecticide until the friendly fungi have returned.

Symptoms

Melanose is found on nearly all varieties of citrus. Its effects extend to only a small distance beneath the skin. It harms the fruit by the markings, which cause such oranges or grapefruit to be graded as second-class. The disease shows light brown to black, more or less rounded or conical elevations from the epidermis. These elevations vary in size, from mere points to one-sixteenth of an inch in diameter. In gross appearance they are much like specks of burned sugar. They sometimes run together forming irregular raised areas. Frequently there is an arrangement of the elevations in curves that may meet forming rings.

The markings on the fruit are not so much raised as those on the stems and leaves. The margins of many will be seen under a hand lens to have

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broken away from the surrounding healthy tissue, and the wax-like mass to have shrunk towards the center, forming a scale-like body. This appearance has caused the disease to be sometimes mistaken for San Jose scale. In other cases, the cracks occur in lines like the cracking of dry mud. In many cases no cracking at all occurs.

The markings on the leaves and young branches are more raised, and usually do not have the scaly appearance often seen on the fruit. They frequently run together, the stems being more or less completely covered. The elevations appear on one or both surfaces of the leaves, but reach their greatest development on the midribs. In severe cases, the leaves may be deformed and partially lose their green color. Large leafy quick-growing branches on the lower half of the tree are likely to be most commonly and severely affected.

Some of the symptoms of dieback (such as markings on stained terminal branches, on ammoniated fruits, or in connection with bark excretions) sometimes resemble the markings caused by melanose. However, the markings on the stained terminal branches are usually not raised and are not made up of collections of small spots. The same is true of the markings on ammoniated fruit; while gum masses also occur in the angles of the segments of ammoniated fruits, but not in melanosed fruits. The bark excretions of die-back are usually masses of a gum-like substance which does not appear in melanose.

Melanose starts its development only on young tissue, and first appears as somewhat sunken points that can barely be seen with the unaided eye. Under a hand lens each of these sunken points is seen to consist of a brownish wax-like mass. As the markings develop, they become raised areas. A yellowing of the tissue surrounding these spots sometimes appears.

Distribution

Melanose occurs in all parts of the State, even in the most isolated localities. It has been found prevalent upon sour orange trees at Gulf Hammock, Fla., where there were no other groves within a radius of fifteen miles. During the present season melanose has increased in prevalence and severity. Its presence on the fruit has caused a money loss that will be large in the total for the year. Like many other diseases its prevalence varies from year to year, probably from climatic conditions. During the past two years it has been increasing in severity. Melanose is also prevalent in the West Indian Islands; and in Australia the citrus trees have been reported as suffering so much from this disease that the crop was diminishing.

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